

REMARKS

Claims 1-27 are presented for examination. Claims 1, 16, and 21 are amended. No claims are cancelled.

Claims 1-27 were rejected under 35 U.S.C. 102(e) as being anticipated by Lin (U.S. Pat. 6,272,245). Claims 1-3 were additionally rejected under 35 U.S.C. 102(b) as being anticipated by Nakamura et al. (U.S. 5,581,628).

With respects to claim 1, Applicants respectfully point out that none of the cited prior art teach or suggest creating a record of the square of the distances between characteristic pattern points. Indeed, the cited prior art teaches the creation of a record of the true distances between characteristic pattern points, and calculating the true distances of characteristic pattern point on a target image to compare with the record of true distances. In essence, the prior art teach against the creation of a record of the square of the distances since it recites the need for the true distance.

In an interview with Examiner Mehrdad Dastouri, the examiner explained that the calculation of the square of the distance between two points in a cartesian plane is an integral step in the calculation of the true distance between the two points, when the distance is calculated using the Pythagorean theorem. Examiner Dastouri had therefore considered both steps to be equivalent. In the interview, it was explained that a main objective of the present invention is to avoid certain mathematical calculations, which by virtue of their complexity are very process intensive (i.e. they require much numerical processing). By eliminating the need for the more process-intensive mathematical calculations, the present invention achieves a simplified algorithm that successfully identifies a target pattern while reducing the mathematical processing requirements, and thereby simplifies its implementation.

Specifically, the present invention seeks to eliminates the need to calculate square roots, inverse cosines of angles, and/or cosines of angles when testing a document for target patterns. By creating a record of the square of the

distances between characteristic pattern points, and comparing the square of the distances of targets points on a scanned target pattern, the present invention eliminates the need for the square root operation integral to the prior art, and thereby simplifies its design.

Examiner Dastouri explained that he understood the objective of the invention, but expressed his concern that the claim language did not preclude the calculation of the square root recited in the cited prior art. Although the prior art does not show the generation of a record of the square of distances, Claim 1 is amended to eliminate any unintended ambiguity. Specially, Claim 1 is amended to state that step (d) avoids “determining the true distances between said identified two sub-image points”, and thereby eliminates the step of calculating “the square root of the square of the distance between said identified two sub-image points”.

Claim 1, and its dependent claims are now believed to be in condition for allowance.

Dependent Claims 16 and 21 are also amended in a similar manner as claim 1 to eliminate any unintended ambiguity.

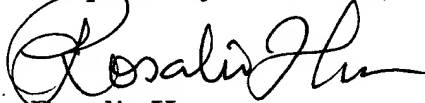
Furthermore, Applicants point out that dependent Claim 4 and independents Claims 11 and 20 recite establishing a second record of first angle parameters proportional to a corresponding first angle within three-point sets, and define these angle parameters as the product of their corresponding first angle's side-lengths multiplied by the cosine of their corresponding first angle. None of the cited prior art teach or suggest the generation of such a record of angle parameters, or the use of such a record in the identifying of a target pattern.

Claim 20 additionally recites the generation of a record of the square of the distances of the legs a triangle whose three apexes are characteristic pattern points. As explained above, none of the cite prior art teach or suggest creation of such a record of the square of the lengths of the legs of a triangle.

Also, Applicants respectfully point out that Claims 8, 14, 19, 21 recite calculating the sum of the product of the X coordinates and the product of the Y coordinates of the sub-image points at the side-ends of a second angle on a target pattern, and comparing this sum with a stored record to identify a target pattern. None of the cited prior art teach or suggest using this sum as an identifying characteristic value.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration of the present application.

Respectfully submitted,



Rosalio Haro

Registration No. 42,633

Please address all correspondence to:

Epson Research and Development, Inc.
Intellectual Property Department
150 River Oaks Parkway, Suite 225
San Jose, CA 95134
Phone: (408) 952-6000
Facsimile: (408) 954-9058
Customer No. 20178

Date: May 10, 2004